

SEQUENCE LISTING

- (1) GENERAL INFORMATION:
 - (i) APPLICANT: GOLD, LARRY
TUERK, CRAIG
 - (ii) TITLE OF INVENTION: METHODS OF PRODUCING NUCLEIC ACID LIGANDS
 - (iii) NUMBER OF SEQUENCES: 83
 - (iv) CORRESPONDENCE ADDRESS:
 - (A) ADDRESSEE: Swanson & Bratschun, L.L.C.
 - (B) STREET: 8400 E. Prentice Avenue, Suite 200
 - (C) CITY: Englewood
 - (D) STATE: Colorado
 - (E) COUNTRY: USA
 - (F) ZIP: 80111
 - (v) COMPUTER READABLE FORM:
 - (A) MEDIUM TYPE: Diskette, 3 1/5 inch, 1.44 MB
 - (B) COMPUTER: IBM compatible
 - (C) OPERATING SYSTEM: MS-DOS
 - (D) SOFTWARE: WordPerfect 8.0
 - (vi) CURRENT APPLICATION DATA:
 - (A) APPLICATION NUMBER: 09/
 - (B) FILING DATE:
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: 08/748,697
 - (B) FILING DATE: 13-NOVEMBER-1996
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: 08/442,062
 - (B) FILING DATE: 16-MAY-1995
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: 07/964,624
 - (B) FILING DATE: 21-OCTOBER-1992
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: 07/714,131
 - (B) FILING DATE: 10-JUNE-1991
 - (vii) PRIOR APPLICATION DATA:
 - (A) APPLICATION NUMBER: 07/536,428
 - (B) FILING DATE: 11-JUNE-1990
 - (viii) ATTORNEY/AGENT INFORMATION:
 - (A) NAME: Barry J. Swanson
 - (B) REGISTRATION NUMBER: 33,215
 - (C) REFERENCE/DOCKET NUMBER: NEX05/DC-CON
 - (ix) TELECOMMUNICATION INFORMATION:
 - (A) TELEPHONE: (303) 793-3333
 - (B) TELEFAX: (303) 793-3433
- (2) INFORMATION FOR SEQ ID NO:1:
 - (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 21 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: single
 - (D) TOPOLOGY: linear
 - (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:
UUCGNNNNNN NNNCGGAAAA A

- (2) INFORMATION FOR SEQ ID NO:2:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 24 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:
- UCCGNNNNNN NNCGGGAAAA NNNN 24
- (2) INFORMATION FOR SEQ ID NO:3:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 27 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:
- NNUCCGNNN NNNNNCGGGA AAANNNN 27
- (2) INFORMATION FOR SEQ ID NO:4:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 57 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:
- GGUCCGAAGU GCAACGGGAA AAUGCACUUAU GAAAGAAUUU UAUAUCUCUA 50
- UGAAAC 57
- (2) INFORMATION FOR SEQ ID NO:5:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:
- CCGGATCCGT TTCAATAGAG ATATAAAATT C 31
- (2) INFORMATION FOR SEQ ID NO:6:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 55 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:
- GGGCAAGCTT TAATACGACT CACTATAGGT CCGAAGTGCA ACGGGAAAAT 50
- GCACT 55
- (2) INFORMATION FOR SEQ ID NO:7:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 31 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:
GTTTCAATAG AGATATAAAA TTCTTTCATA G 31

(2) INFORMATION FOR SEQ ID NO:8:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:
GTTTCAATAG AGATATAAAA TTCTTTCATA GNNNNNNNNNN NNNNNNNNNNN 50
NNNNNNNNNN NAGTGCATTT TCCCGTTGCA CTTCGGACC 89

(2) INFORMATION FOR SEQ ID NO:9:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 85 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:
CCCGGATCCT CTTTACCTCT GTGTGAGATA CAGAGTCCAC AAACGTGTTC 50
TCAATGCACC CGGTCGGAAG GCCATCAATA GTCCC 85

(2) INFORMATION FOR SEQ ID NO:10:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 49 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:
CCGAAGCTTA ATACGACTCA CTATAGGGAC TATTGATGGC CTTCCGACC 49

(2) INFORMATION FOR SEQ ID NO:11:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:
CCCGGATCCT CTTTACCTCT GTGTG 25

(2) INFORMATION FOR SEQ ID NO:12:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ix) FEATURE:

10040497-010702

(D) OTHER INFORMATION: N's at positions 9-11 are base
paired with N's at positions 21-23

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:
UCCSANNNNN NASGGGANAA NNN 23

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 66 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(iii) MOLECULAR TYPE: RNA

(ix) FEATURE:

- (D) OTHER INFORMATION: N at position 29-36 can have a
variable length of 6-8 bases

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:
GGUCCGAAGU GCAACGGGGA AAAUGCACNN NNNNNNNNNN NNNNNNNNNN 50
NNNNNNNNNN NNNNNN 66

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 88 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

GGUCCGAAGU GCAACGGGAA AAUGCACUAG CUCGUGAGGC UUUCGUGCUG 50
UUCCGAGCUA UGAAAGAAUU UUAUAUCUCU AUUGAAAC 88

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 87 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GGUCCGAAGU GCAACGGGAA AAUGCACUGC AUGUGAGGCG GUAACGCUGU 50
UCCGUGCUAU GAAAGAAUU UUAUAUCUCU UUGAAAC 87

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 89 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

GGUCCGAAGU GCAACGGGAA AAUGCACUGG UGAGUGAGGC CGAUGCUGUU 50
CCUCGCCGCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

10040497-010702

(A) LENGTH: 91 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:
 GGUCCGAAGU GCAACGGGAA AAUGCACUGA CGCGCGAGGU CUUGGUACUG 50
 UCCGUGGCU CUAUGAAAGA AUUUUAUUC UCUAUGAAA C 91

(2) INFORMATION FOR SEQ ID NO:18:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 89 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:
 GGUCCGAAGU GCAACGGGAA AAUGCACUCU GGGUGAGACU UGAAGUCGUU 50
 CCCAGGUCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:19:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 89 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:
 GGUCCGAAGU GCAACGGGAA AAUGCACUCC CGGUGAAGCA UAAUGCUGUU 50
 CCUGGGGUCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:20:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 89 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:
 GGUCCGAAGU GCAACGGGAA AAUGCACUGG GAGUGAGGUU CCCCGUCCU 50
 CCCGCACCCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:21:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 89 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:
 GGUCCGAAGU GCAACGGGAA AAUGCACUAG CGAUGUGAAG UGAUACUGGU 50
 CCAUCGUGCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:22:
 (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 88 base pairs

10040497.010702

(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:
GGUCCGAAGU GCAACGGGAA AAUGCACUCA CAGUGAGCCU UCUGGUGGUC 50
CUGUGUGCUA UGAAAGAAUU UUAUAUCUCU AUUGAAAC 88

(2) INFORMATION FOR SEQ ID NO:23:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:
GGUCCGAAGU GCAACGGGAA AAUGCACUUG UUGUGAGUGG UUGAUUCCAU 50
GGUCCAACCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:24:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:
GGUCCGAAGU GCAACGGGAA AAUGCACUGC CUGUGAGCUG UUUAGCGGUC 50
CAGGUCGUCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:25:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 88 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:
GGUCCGAAGU GCAACGGGAA AAUGCACUCA AGGCGAAGAC UUAGUCUGCU 50
CCCUGUGCUA UGAAAGAAUU UUAUAUCUCU AUUGAAAC 88

(2) INFORMATION FOR SEQ ID NO:26:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 88 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:
GGUCCGAAGU GCAACGGGAA AAUGCACUUG CGUCGAAGUU AAUUCUGGUC 50
GAUGCCACUA UGAAAGAAUU UUAUAUCUCU AUUGAAAC 88

(2) INFORMATION FOR SEQ ID NO:27:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 90 base pairs
(B) TYPE: nucleic acid

- (C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:
GGUCCGAAGU GCAACGGGAA AAUGCACUUU CAAUGAGGUA UGUAAUGAUG 50
GUCGUGCGCC UAUGAAAGAA UUUUAUAUCU CUAUUGAAAC 90
- (2) INFORMATION FOR SEQ ID NO:28:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:
GGUCCGAAGU GCAACGGGAA AAUGCACUGC GGGAGAGUCU UUUGACGUUG 50
CUCCUGCGCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89
- (2) INFORMATION FOR SEQ ID NO:29:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 88 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:
GGUCCGAAGU GCAACGGGAA AAUGCACUCA UGGGAGCCCA UCGAUUCUGG 50
GUGUUGCCUA UGAAAGAAU UUAUAUCUCU AUUGAAAC 88
- (2) INFORMATION FOR SEQ ID NO:30:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 88 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:
GGUCCGAAGU GCAACGGGAA AAUGCACUUG CACAGAGCCA AAUUUGGUGU 50
UGCUGUGCUA UGAAAGAAU UUAUAUCUCU AUUGAAAC 88
- (2) INFORMATION FOR SEQ ID NO:31:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:
GGUCCGAAGU GCAACGGGAA AAUGCACUGG CCAGAGCUUA AAUUCAGUG 50
UUGCUGGCCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89
- (2) INFORMATION FOR SEQ ID NO:32:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:
GGUCCGAAGU GCAACGGGAA AAUGCACUCA UAGCAGUCCU UGAUACUAUG 50
GAUGGUGGCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 89 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:
GGUCCGAAGU GCAACGGGAA AAUGCACUGG AUGCAAGUUA ACUCUGGUGG 50
CAUCCGUCCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 88 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:
GGUCCGAAGU GCAACGGGAA AAUGCACUCA GUGGAGAUUA AGCCUCGCUA 50
GGGGCCGCUA UGAAAGAAU UUAUAUCUC AUUGAAAC 88

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ix) FEATURE:
(D) OTHER INFORMATION: Y at position 7 is either U or C

(ix) FEATURE:
(D) OTHER INFORMATION: S at position 1 is base paired to
the S at position 34

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:
SUGCGUYGAG AUACACNNNG GUGGACUCCC GCAS 34

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 26 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULAR TYPE: RNA

(ix) FEATURE:
(D) OTHER INFORMATION: The N's as positions 6-11 are base
paired to the N's at positions 21-26

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:
UCCGANNNNN NACGGGANAA NNNNNN 26

(2) INFORMATION FOR SEQ ID NO:37:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 89 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULAR TYPE: RNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

GGUCCGAAGU GCAACGGGAA AAUGCACUNN NNNNNNNNNN NNNNNNNNNN 50
NNNNNNNNNCU AUGAAAGAAU UUAUAUCUC UAUUGAAAC 89

(2) INFORMATION FOR SEQ ID NO:38:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 51 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULAR TYPE: RNA

(ix) FEATURE:

(D) OTHER INFORMATION:

N's at positions 29-32 are based
paired with N's at positions 48-51

(ix) FEATURE:

(D) OTHER INFORMATION:

N's at positions 38-39 are based
paired with N's at positions 40-41

(ix) FEATURE:

(D) OTHER INFORMATION:

N at position 44 is either G or U

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

GGUCCGAAGU GCAACGGGAA AAUGCACUNN NNGUGARNNN NUGNUCCNNN 50
N 51

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 54 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULAR TYPE: RNA

(ix) FEATURE:

(D) OTHER INFORMATION:

N's at positions 29-34 are based
paired with N's at positions 48-53

(ix) FEATURE:

(D) OTHER INFORMATION:

N's at positions 37-39 are based
paired with N's at positions 40-42

(ix) FEATURE:

(D) OTHER INFORMATION:

N at position 45 is either G or U

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

GGUCCGAAGU GCAACGGGAA AAUGCACUNN NNNNAGNNNN NNUGNUGNNN 50
NNNN 54

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:

20201010 10040497.010702

2020707-010702

(A) LENGTH: 37 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:
GGGUGCAUUG AGAAACACGU UUGUGGACUC UGUAUCU 37

(2) INFORMATION FOR SEQ ID NO:41:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 66 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:
GGGUGCAUUG AGAAACACGU UUGUGGACUC UGUAUCUAUG AAAGAAUUUU 50
AUAUCUCUAU UGAAAC 66

(2) INFORMATION FOR SEQ ID NO:42:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 23 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:
GTTTCAATAG AGATATAAAA TTC 23

(2) INFORMATION FOR SEQ ID NO:43:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:
GGGACUAUUG AUGGCCUUC GACCNNNNNN NNNNNNNNNN NNNNNNNNNN 50
NNNNNNNNNN NCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:44:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:
GGGACUAUUG AUGGCCUUC GACCGGGUGC AUUGAGAAAC ACGUUUGUGG 50
ACUCUGUAUC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:45:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 84 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single

2020102610497.010702

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:
GGGACUUAUG AUGGCCUCC GACCUGGUGC GUUGAGAAAC AGGUUUUUGG 50
ACUCCGUACC ACACAGAGGU AAAGAGGAUC CGGG 84

(2) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:
GGGACUUAUG AUGGCCUCC GACCGUAUGC AUUGAGAGAC ACACUUGUGG 50
ACUCUGCAUC CCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:
GGGACUUAUG AUGGCCUCC GACCAGAUGG AUUGAGAAAC ACUAUUAUGG 50
ACUCUCCAUC GCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:
GGGACUUAUG AUGGCCUCC GACCAGCUUC GUUGAGAUAC ACGUUGAUGG 50
ACUCCGAAGC ACACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:
GGGACUUAUG AUGGCCUCC GACCUCGUAC GUUGAGAAAC AAGUUUAUGG 50
ACUCCGUACC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:
GGGACUAAUG AUGGCCUCC GACCUCGAUC GUUGAGAUAC ACGCUAGUGG 50
ACUCCGAAAC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:51:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:
GGGACUAAUG AUGGCCUCC GACCUACUGC AUCGAGAUAC ACGUUUGUGG 50
ACUCUGCACA UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:52:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:
GGGACUAAUG AUGGCCUCC GACCUGAUAC GUUGAGAAAC ACAAUGCUGG 50
ACUCCGCAUC CCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:53:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:
GGGACUAAUG AUGGCCUCC GACCGCCUGC AUUGAGAAAC AGGAUUCUGG 50
ACUCUGCCAC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:54:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:
GGGACUAAUG AUGGCCUCC GACCCGCUAU GUUGAGAAAC ACUUUGCUGG 50
ACUCCGUAGC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:55:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 85 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

GGGACUAUUG AUGGCCUUC GACCUACUGC AUCGAGAAAC ACGUAAGUGA 50
CUCUGCAUCC CACACAGAGG UAAAGAGGAU CCGGG 85

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

GGGACUAUUG AUGGCCUUC GACCCGUAC GUCGAGAUAC ACGAAGAUGG 50
ACUCCGUAUC GCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

GGGACUAUUG AUGGCCUUC GACCAACUCC AUCGAGAAAC ACGAUAGUGG 50
ACUCUGGAGC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

GGGACUAUUG AUGGCCUUC GACCGGAGAC GUCGAGAAAC ACGUUUGUGG 50
ACUCCGUCUC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

GGGACUAUUG AUGGCCUUC GACCAGCUAC AUCGAGAAAC AAGAUUUUGG 50
ACUCUGUAGC GCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 83 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

GGGACUAUUG AUGGCCUUC GACCAAGUGC AUUGAGAUAC AAAUGAUUGG 50

ACUCUGCACA CACAGAGGUA AAGAGGAUCC GGG 83

(2) INFORMATION FOR SEQ ID NO:61:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 86 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

GGGACUAUUG AUGGCCUUC GACCUGCUAC GUUGAGAUAC ACGUUGAUGC 50

ACUCCGUAGC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 86 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

GGGACUAUUG AUGGCCUUC GACCAGCUAC GUUGAGAUAC ACGUUACGUG 50

GCUCCGUAGC CCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:63:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 86 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

GGGACUAUUG AUGGCCUUC GACCGAGUGG CUCGAGAAAC AGGUUGCUGG 50

ACUCGCCACA UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:64:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 86 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:64:

GGGACUAUUG AUGGCCUUC GACCUCGUGC GUUGAGCAAC ACGUUGAUGG 50

ACUCCGCACA GCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 86 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

GGGACUAUUG AUGGCCUUC GACCGGCACC GUUGAGAAAC ACAUGCGUGG 50

ACUCCGUGCC CCACACAGAG GUAAAGAGGA UCCGGG 86

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- (2) INFORMATION FOR SEQ ID NO:66:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:
- GGGACUUAUG AUGGCCUUC GACCUCCUGC AUUGAGAAAC AGUGAUCUGG 50
- ACUCUGCAAC UCACACAGAG GUAAAGAGGA UCCGGG 86
- (2) INFORMATION FOR SEQ ID NO:67:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 85 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:67:
- GGGACUUAUG AUGGCCUUC GACCUUGUGA UUGAGCAACA CGUGAGUGGA 50
- CUCUCCACAU CACACAGAGG UAAAGAGGAU CCGGG 85
- (2) INFORMATION FOR SEQ ID NO:68:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:
- GGGACUUAUG AUGGCCUUC GACCCCGUGC GUUGAGACAC ACACCGAUGG 50
- ACUCCGCAUG UCACACAGAG GUAAAGAGGA UCCGGG 86
- (2) INFORMATION FOR SEQ ID NO:69:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:
- GGGACUUAUG AUGGCCUUC GACCAGCUGC AUCGAGAUAC ACGAUUGUGG 50
- ACUCUGCAGC CCACACAGAG GUAAAGAGGA UCCGGG 86
- (2) INFORMATION FOR SEQ ID NO:70:
- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 87 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:
- GGGACUUAUG AUGGCCUUC GACCAGAUUC GUUGAGAAAC ACAUGGGUGG 50
- ACUCUCCCGC UACACACAGA GGUAAGAGG AUCCGGG 87
- (2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

GGGACUUAUG AUGGCCUCC GACCAGAUGG AUUGAGAAAC ACGUUCGUGG 50
ACUCUCCAAC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:72:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

GGGACUAUUG AUGGCCUCC GACCGACUGC AUCGAGAAAC ACUGAUGUGG 50
CCUCCGCACG GCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:73:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:73:

GGGACUAUUG AUGGCCUCC GACCAGCUAC GUUGAGAAAC AGUAUAAUGG 50
ACUCCGUAGC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:74:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:74:

GGGACUAUUG AUGGCCUCC GACCGAGUGC GUCGAGAAAC ACAUUUGUGG 50
ACUCCGCACA CCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:75:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 86 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:75:

GGGACUAUUG AUGGCCUCC GACCUCGUAC GUUGAGAAAC ACGCUAGUGG 50
ACUCCGUAUG UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:76:

(i) SEQUENCE CHARACTERISTICS:

10040497.010702

10040497.010702

(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:76:
GGGACUUAUG AUGGCCUCC GACCAGUAC GUUGAGAGAC ACGCACGUGG 50
ACUCCGUAUC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:77:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:77:
GGGACUUAUG AUGGCCUCC GACCAGGAUC ACAGAGAAAC ACCGUGGGUG 50
GCUCCUCUA UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:78:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 87 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:78:
GGGACUUAUG AUGGCCUCC GACCGUGCGC AUCGAGAAAC ACGUUGAUGG 50
ACUCUGCAUG CACACACAGA GUAAGAGG AUCCGGG 87

(2) INFORMATION FOR SEQ ID NO:79:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:79:
GGGACUUAUG AUGGCCUCC GACCGAGAGG AUCGAGAAAC ACGUAUGUGG 50
ACUCUCCAUC UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:80:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:
GGGACUUAUG AUGGCCUCC GACCGGAUGG AUUGAGACAC ACGUAUGUGG 50
ACUCUCCAUC ACACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:81:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs

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(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:
GGGACUAAUG AUGGCCUCC GACCUCGGGC AUUGAGAUAC ACGUAGAUGG 50
ACUCUGUCUC ACACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:82:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 86 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:
GGGACUAAUG AUGGCCUCC GACCUGGACC GUAGAGAAAC ACGUUUGAUG 50
GCUCCCUCUG UCACACAGAG GUAAAGAGGA UCCGGG 86

(2) INFORMATION FOR SEQ ID NO:83:
(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 29 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
(ii) MOLECULAR TYPE: RNA
(ix) FEATURE:
(D) OTHER INFORMATION: N's at positions 1-5 are paired with
N's at positions 25-29
(ix) FEATURE:
(D) OTHER INFORMATION: N at position 16 is paired with N at
position 17
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:
NNNNNUGAG AUACANNUGG ACUCNNNNN 29